**Part 1:** Write a command to tabulate the data: the output should be a list of unique cities (left column), and the right column should be the number of occurrences in the original list. This table should be neatly formatted, and sorted in descending order by the number of occurrences. Hint: look at the options for uniq and sort.

Command: cat meds.txt | sort | uniq -c | sort -k 1 -r | awk '{print $2 "\t" $1}' | column -t

sort -nrk2

Explain: First ‘cat meds.txt |’ print the content of meds.txt and its output as input of ‘sort’ for sorting. ‘uniq -c’ counts the repeated lines and displays at the beginning of each element. ‘sort -k 1 -r’ sort based on the counting number and reverse the display. ‘awk '{print $2 "\t" $1}'’ rearrange the order of columns. ‘column -t’ is used to align each column.

Reference: <https://stackoverflow.com/questions/18946434/reordering-columns-with-awk>

**Part 2:** Create a copy of the file (call it meds2.txt), and using vi, change ONLY ONE occurrence of “Humira” to “Humira Injection”. Run the command on this new file. Does the command still work? Explain what happened if not.

Answer: No, after modify the meds2.txt, the command did not work anymore. Here the results:

[luzy@login001 class3]$ cat meds.txt | sort | uniq -c | sort -k 1 -r | awk '{print $2 "\t" $1}' | column -t

Simvastatin 35

Omeprazole 31

Levothyroxine 27

Metformin 22

Fluticasone 13

Predinisone 9

Lisinopril 7

Alprazolam 5

Albuterol 5

Glipizide 4

Ranitidine 3

Warfarin 2

Humira 2

Stellara 1

Rituxan 1

[luzy@login001 class3]$ cat meds2.txt | sort | uniq -c | sort -k 1 -r | awk '{print $2 "\t" $1}' | column -t

Simvastatin 35

Omeprazole 31

Levothyroxine 27

Metformin 22

Fluticasone 13

Predinisone 9

Lisinopril 7

Alprazolam 5

Albuterol 5

Glipizide 4

Ranitidine 3

Warfarin 2

Stellara 1

Rituxan 1

Humira 1

Humira 1

Explain: After modify ‘Humira’ to ‘Humira Injection’， a blank was insert, and it is interpreted by shell as delimiter. So the ‘Injection’was assigned to the third column.

The following command could solve this problem:

cat meds2.txt | sort | uniq -c | sort -k 1 -r | awk '{print $2 "\t" $3 "\t" $1}' | column -t

Its output is like this：

Simvastatin 35

Omeprazole 31

Levothyroxine 27

Metformin 22

Fluticasone 13

Predinisone 9

Lisinopril 7

Alprazolam 5

Albuterol 5

Glipizide 4

Ranitidine 3

Warfarin 2

Stellara 1

Rituxan 1

Humira Injection 1

Humira 1

Reference: <https://vim.fandom.com/wiki/Search_and_replace>